

HP StorageWorks

C2000 FC host bus adapter for AIX installation guide

This guide describes how to install the C2000 FC 2-GB host bus adapter (HBA) for IBM AIX systems.

For the latest version of this guide and other host bus adapter documentation, access the HP storage web site:

<http://h18006.www1.hp.com/storage/saninfrastructure.html>.

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About this guide

This guide provides information about:

- Installing the C2000 FC HBA
- Troubleshooting HBA problems
- Contacting technical support for additional assistance

Intended audience

This guide is intended for use by system administrators who are experienced with the following:

- IBM AIX operating system
- HBAs

Related documentation

In addition to this guide, please refer to the *HP StorageWorks C2000 FC host bus adapter for AIX release notes*.

These and other HP documents can be found on the following HP web site:

<http://www.docs.hp.com>.

Document conventions and symbols

Table 1 Document conventions

Convention	Element
Medium blue text: Figure 1	Cross-reference links
Bold	Menu items, buttons, keys, tabs, and user input in a graphical interface
<i>Italics</i>	Text emphasis
Monospace font	Command-line user input, commands, code, device instances, file and directory names, and system responses (output and messages)
<i>Monospace</i> , italic font	Command-line and code variables
Medium blue, underlined sans serif font text (http://www.hp.com)	Web site addresses



WARNING! Indicates that failure to follow directions could result in bodily harm or death.



CAUTION: Indicates that failure to follow directions could result in damage to equipment or data.



IMPORTANT: Provides clarifying information or specific instructions.



NOTE: Provides additional information.



TIP: Provides helpful hints and shortcuts.

HP technical support

Telephone numbers for worldwide technical support are listed on the HP web site:
<http://www.hp.com/support>.

Collect the following information before calling:

- Technical support registration number (if applicable)
- Product serial numbers
- Product model names and numbers
- Applicable error messages
- Operating system type and revision level
- Detailed, specific questions

For continuous quality improvement, calls may be recorded or monitored.

HP-authorized reseller

For the name of your nearest HP-authorized reseller:

- In the United States, call 1-800-345-1518.
- Elsewhere, visit <http://www.hp.com> and click **Contact HP** to find locations and telephone numbers.

Helpful web sites

For third-party product information, see the following vendor web sites:

- <http://www.hp.com>
- <http://www.hp.com/go/storage>
- <http://www.hp.com/support/>
- <http://www.docs.hp.com>

1 C2000 FC HBA features

This chapter describes the features of the C2000 FC HBA for AIX.

Performance specifications

- Compatible with Fibre Channel switches, storage subsystems, and tape drives.
- Complies with PCI version 2.1 specification
- Includes high-performance 64-bit PCI bus master provides data transfer rates of up to 533 MB/s across the PCI bus
- Supports 400 MB/s Fibre Channel data transfer rates
- Supports simultaneous multiple host and target connections
- Supports direct optical Fibre Channel connection
- Supports point-to-point FC switched fabric connectivity

Figure 1 shows the C2000 FC HBA.



Figure 1 C2000 FC HBA

Physical specifications

Table 2 lists the HBA specifications.

Table 2 HBA specifications

Specification	Value
Temperature (operating)	32°F to 131°F (0°C to 55°C)
Temperature (non-operating)	-4°F to 158°F (-20°C to 70°C)
Operating humidity	10% to 90% noncondensing
Non-operating humidity	5% to 95% noncondensing
Dimensions	(L x W) 16.8 x 10.7 cm (6.6 x 4.2 in)
Power dissipation	15W maximum
Current requirement	3A maximum
Voltage	5V /3.3 V/Universal

2 Installing the C2000 FCHBA

This chapter describes how to install the C2000 FC HBA.

Installation procedures

To install the HBA, you must:

- Install or upgrade the driver.
- Install the HBA in your system.



NOTE: If you are installing a RAID subsystem on the HACMP cluster, you must install the HBA and its driver into each IBM host server in the cluster.

Installing the driver

To install the driver in your host system:

1. Obtain the latest driver from the HP web site at <http://h18006.www1.hp.com/products/storageworks/aixfchba/index.html>:
 - a. Select **Software & drivers**.
 - b. Select **DRIVER for hp StorageWorks PCI-to-fc hba for AIX- IBM AIX**, then click **Download** to copy the driver to your system.
2. Create a directory to load the driver by entering the following command:

```
# mkdir /tmp/fcdriver
```
3. Copy the driver image by entering the following command:

```
# cp PC1000.image /tmp/fcdriver
```
4. Change directories by entering the following command:

```
# cd /tmp/fcdriver
```
5. Install the driver by entering the following command:

```
# installp -acd PC1000.image all
```

Upgrading the driver

To upgrade the driver, follow the instructions in “[Installing the driver](#)” on page 12, then reboot the server.

Installing the HBA

Use the following steps to install the HBA. Refer to the documentation provided with your host system for details on opening the case and installing the HBA in an available PCI slot.

1. Power down the host server.
2. Observe proper ESD precautions as described in "[Electrostatic discharge](#)" on page 24.
3. Install the HBA in a free PCI slot.
4. Make sure that the airflow around the HBA is not blocked.
5. Do not attach the cables from the host adapter to the Fibre Channel devices at this time.
6. Power up the host server.

3 Troubleshooting

This chapter provides some common solutions to problems that can occur when installing a C2000 FC HBA.

The troubleshooting techniques described in this chapter do not identify all possible problems with the HBA, nor do the actions suggested remedy all problems.

Identifying the cause of failure

Use the `errpt` command to identify the cause of failure. The `lsdev` command provides the location of the component. For example, if `errpt` identifies a loose cable on the device **cdal**, `lsdev` displays an address similar to the following example:

```
hdisk1 Available 00-02-01-3,0 Cambex SCSI...
```

This message indicates that the HBA is in location 00-02, and the drive is at SCSI ID 3, LUN 0.

Isolating driver and HBA installation problems

Use the commands in [Table 3](#) to isolate problems during installation of the Fibre Channel driver and HBA. Type the command and verify the output.

Table 3 Troubleshooting commands

Command	Description	
whoami	You should be root	
uname -a	This command must include the following 5 fields:	
	'AIX'	
	hostname where the HBA is installed	
	1 or higher as minor rev of AIX	
	AIX version	
	serial number of host	

Table 3 Troubleshooting commands (continued)

Command	Description	
<code>lslpp -l PC1000.driver.obj</code>	You must include the following information:	
	Fileset Path:/usr/lib/objrepos	PC1000.driver.obj
	Level 01.05.00.00 or (higher)	
	State	Committed
<code>lsdev -Cc adapter</code>	Displays a line for each HBA, including:	
	scsi x	x is a unique number for each SCSI HBA
	Available SS-SS <ul style="list-style-type: none"> Check that the number of SCSI HBAs and their slots are correct. If Available displays, then HBA and driver are installed. If Defined displays, or the HBA is not listed, then the HBA was not found. 	S is the location in the machine where the HBA is installed
<code>lscfg -vl scsi4</code>	This command displays the following detailed information for the HBA device scsi4:	
	Location	Description
	20-60	Cambex Fibre Channel I/O Controller
	Manufacturer	Cambex
	Machine Type and Model	PC2000LH
	ROS Level and ID	03.02.10
	Serial Number	642
	Displayable Message	Cambex Fibre Channel I/O Controller
	Network Address	500502E01000082

Table 3 Troubleshooting commands (continued)

Command	Description	
	Device Specific (ZO)	Build: MFTl
	Device Specific (YL)	P2-I2/Z1
	Device Specific (Z1)	1.5.25.4
<code>cfgmgr -v >/tmp/cfg.log 2>&1</code>	Identifies the HBA and configure it. <ul style="list-style-type: none"> • If <code>cfg.log</code> contains the ID 77100021 and no driver is found, then the driver is not installed. • If an MCA HBA is present but not configured, then check for and remove the reset jumper on the HBA. 	
<code>lsattr -El scsi x</code>	For each <i>x</i> , the device should include: id 0 Adapter SCSI ID True <ul style="list-style-type: none"> • Make sure that the ID value does not conflict with any other host or device on the same Fibre Channel loop. The other attributes are different on each HBA. • During boot, the number displayed when configuring the HBA is 0x91. 	
<code>/usr/lpp/cbxfc/mbtest scsi x</code>	Displays the Fibre Channel status from the adapter or from attached devices. Enter <code>mbtest -help</code> for more information about using this command.	
<code>/usr/lpp/cbxfc/sctest scsi x</code>	Displays IOCINFO information from the adapter, or to see the results of SCSI Inquiry or TestUnitReady commands to SCSI devices attached to the adapter. Enter <code>sctest -help</code> for more information about using this command.	
<code>/usr/lpp/cbxfc/runtrace</code>	Start a trace if HP support requests a trace of the HBA failure. To stop the trace and generate a trace report, enter: <code>trcstop; trcrpt > /tmp/trc.log</code>	

A Regulatory compliance and safety

Laser device

All HP systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light.

Laser safety warning



WARNING! To reduce the risk of exposure to hazardous radiation:

- Do not try to open the laser device enclosure. There are no user-serviceable components inside.
- Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
- Allow only HP authorized service technicians to repair the laser device.

Certification and classification information

This product contains a laser internal to the fiber optic (FO) transceiver for connection to the Fibre Channel communications port.

In the USA, the FO transceiver is certified as a Class 1 laser product conforming to the requirements contained in the Department of Health and Human Services (DHHS) regulation 21 CFR, Subchapter J. A label on the plastic FO transceiver housing indicates the certification.

Outside the USA, the FO transceiver is certified as a Class 1 laser product conforming to the requirements contained in IEC 825-1:1993 and EN 60825-1:1994, including Amendment 11:1996 and Amendment 2:2001.

Laser product label

The optional label in [Figure 2](#) or equivalent may be located on the surface of the HP supplied laser device.



This optional label indicates that the product is classified as a CLASS 1 LASER PRODUCT. This label may appear on the laser device installed in your product.

Figure 2 Class 1 laser product label

International notices and statements

Canadian notice (avis Canadien)

Class A equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union notice

Products bearing the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community and if this product has telecommunication functionality, the R&TTE Directive (1999/5/EC).

Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards and regulations):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN55024 (IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEC61000-4-11) - Electromagnetic Immunity

- Power Quality:
 - EN61000-3-2 (IEC61000-3-2) - Power Line Harmonics
 - EN61000-3-3 (IEC61000-3-3) - Power Line Flicker
- EN60950 (IEC60950) - Product Safety
- Also approved under UL 60950/CSA C22.2 No. 60950-00, Safety of Information Technology Equipment.

BSMI notice

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Japanese notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

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Safety

Electrostatic discharge

To prevent damage to the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

Preventing electrostatic damage

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly (see "[Grounding methods](#)" on page 25).

Grounding methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm (± 10 percent) resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an HP authorized reseller install the part.



NOTE: For more information on static electricity, or assistance with product installation, contact your HP authorized reseller.

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